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August 28, 2002, 07:56:20 ; Search time 202.43 Seconds (without alignments) 13154.840 Million cell updates/sec
                                                                                                                                                                                                         1 ATGGATGCTGACGAGGGTCA.....ACCGCTTCCACATGAGCTAA 1551
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Copyright (c) 1993 - 2000 Compugen Ltd.
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Maximum Match 100%
Listing first 45 summaries
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1551
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

000000	Human Ikaros isofo Human Ikaros cDNA Human Ikaros cDNA Human Ikaros pepti Human Ikaros isofo Murine Ikaros isofo Muse Ikaros cona Mouse Ikaros isofo
RIES	
SUMMARIES ID	AAV42840 AAC76542 AAC16060 AAV66969 AAQ44980 AAV42806 AAV42806 AAV42806
DB 1	19 21 17 19 15 19 19
% Query Score Match Length DB I	1551 (439 1386 1386 1611 1611 1386 2049 2049
% Query Match	100.0 94.7 89.4 89.4 89.1 88.9 75.7
Score	1468.8 1468.8 1386 1382.4 1379.6 1174.8 1174.8
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s cDNA. s isofour Ikaros	MUTINE IKATOS ISOTO MUTINE IKATOS ISOTO MOUSE IKATOS ENCOD MOUSE IKATOS ESTO IKATOS POTOTEIN ENC MOUSE ALOLOS CODIN MOUSE ALOLOS CODIN MUTINE HELIOS-1 CD HUMAN HELIOS-2 CD MUTINE EMPLYONIC D IKATOS POTOTEIN ENC HUMAN AIOLOS ODDII IKATOS POTOTEIN ENC IKATOS POTOTEIN ENC HUMAN AIOLOS ODDII IKATOS POTOTEIN ENC HUMAN AIOLOS ODDII IKATOS POTOTEIN ENC HUMAN AIOLOS ODDII IKATOS POTOTEIN ENC	nument converses encodin Human genomic DNA-Human genomic DNA-Human genomic DNA Ikaros protein enc Ikaros protein enc
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868 868 813.2 813.2 813.2 813.2 813.2 689.4 689.4 689.4 580 577	######################################	145.8 145.8 140.8 135
10 11 11 11 11 11 12 12 13 13	22 22 22 23 23 24 23 24 25 25 26 26 27	4 4 4 4 4 4 5 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
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ALIGNMENTS

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Ikaros; hIK-1; transcription factor; human; lymphocyte;
cell differentiation; T cell; cancer; immunodeficiency;
Alzheimer's disease; therapy; diagnosis; ss.
                                                                                                                 Location/Qualifiers
       AAV42840 standard; cDNA; 1551 BP.
                                                   Human Ikaros isoform hIk-1 cDNA.
                                                                                                                       1..26
/*tag= a
/number= Ex1
                                                                                                                                                                           /*tag= c
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421..588
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164..420
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589..714
                                                                                                                                                                                                                      /*tag= e
/number= Ex5
                                    11-JAN-1999 (first entry)
                                                                                                                                             27..163
/*tag= b
                                                                                                                                                                          /*tag=
                                                                                                Homo sapiens.
                      AAV42840;
                                                                                                              Key
AAV42840
                                                                                                                                            exon
                                                                                                                                                                 exon
                                                                                                                                                                                        exon
                                                                                                                                                                                                              exon
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New nucleic acid encoding Ikaros protein involved in early differentiation of lymphocytes - existing in several isoforms, and related products, used to treat e.g. immune diseases or cancer and to control cell differentiation
                                                                                                                                                                         Claim 1; Page 127-129; 158pp; English.
     /*tag= d
/number= Ex6
850..1551
                         /*tag= e
/number= Ex7
                                                                                 96US-0711417
                                                                     97CA-2194256
                                                                                             (GEHO ) GEN HOSPITAL CORP.
715..849
                                                                                                                         WPI; 1998-378292/33.
                                                                                                                              P-PSDB; AAW70971.
                                                                                                            Georgopoulos K;
                                                                                   05-SEP-1996;
                                                                      02-JAN-1997;
                                             CA2194256-A
                                                          05-MAR-1998
                     exon
  exon
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This is the nucleotide of human Ikaros CDNA (isoform hIk-1) that.

codes for a 516-amino acid zinc finger protein (see AAW70971) that is
codes for a 16-amino acid zinc finger protein (see AAW70971) that is
codes for a 516-amino acid zinc finger protein (see AAW70971) that is
colated from a Jurkat T cell line library using mouse Ikaros exon
isolated from a Jurkat T cell line library using mouse Ikaros exon
c ToDNA as probe. The Ikaros gene maps between pil.2-pil on human
c 7-chromosome 7. The human and murine Ikaros sequences (see AAW42805-11
chromosome 7. The human and murine Ikaros protein isoforms.
c and AAW42840) are highly conserved. Differential splicing of Ikaros
and AAW42840) are highly conserved. Differential splicing of Ikaros
c protein provides Ikaros nucleic acids, vectors and host cells
c expressing Ikaros proteins. These are used to treat T and B cell
expressing Ikaros proteins. These are used to treat T and a Cell
c cancers), to control expression of heterologous genes placed under
c control of an Ikaros-reponsive element, to treat nervous system
c differentialion, especially in haematopoletic
c amplification or differentiation, especially in haematopoletic
c cells. Some Ikaros isoforms are antagonistic of others and may be
c used to inhibit interaction with DNA sequences. The same effect
c can be achieved with Ikaros-binding oligonucleotides. Examining
c used to assess risk of acquiring the above diseases.

Sequence 1551 BP; 393 A; 450 C; 443 G; 265 T; 0 other;

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                                                                                                                                                                               61 AGCGATACTCCAGATGAGGGGGATGAGCCCATGCCGATCCCCGAGGACCTCTCCACCACC 120
                                                                                                                                   TCGGGAGGACAGCAAAAGCTCCAAGAGTGACAGAGTCGTGGCCAGTAATGTTAAAGTAGAG 180
                                                                                                           61 agcgatactccagatgagggggggtgatgagccatgccgatccccgaggacctctccaccacc 120
                                                                1 atygatgetgacgagggteaagacatgtettteteateagggaaggaaageeeeeetgta 60
                                         DB 19; Length 1551;
                        0; Indels
 100.0%; Score 1551;
100.0%; Pred. No. 0;
tive 0; Mismatches
                          Matches 1551; Conservative
        Query Match
Best Local Similarity
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1321 AACTCGCAGGACGCGCTCCGCGTGGTCAGCACCAGCGGGGAGCAGGATGAAGGTGTACAAG 1380
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                                                                                                                                                                                                                                                                                                                                                                                                               961 CTGGGGGCCGAGTCCCTGCGCCGCTGGTGCAGACGCCCCCGGGGGGGTTCCGAGGTGGTC 1020
                                                                                                                                                                                                                                                                                                                                                                                                                                                1021 CCGGTCATCAGCCCGATGTACCAGCTGCACAGGCGTCGGAGGGCACCCCGGGCTCCAAC 1080
                                                                                                                                                                                                                                                                                                                                                                                                                               961 ctgggggccgagtccctgcgcccgctggtgcagacgcccccgggcggttccgaggtggtc 1020
                                                                                                                                                                                                                                                                                                                                                                              661 GAGCGCTGCCACAACTTGGAAAGCATGGGCCTTCCGGGCACACTGTACCCAGTCAT 720
                                                                                                                                                                                                                                                                           721 AAAGAAGAAACTAAGCACAGTGAAATGGCAGAAGACCTGTGCAAGATAGGATCAGAGAGA 780
                                                                                                                                                                                                                                                                                   841 AAATTTCTTGGGGACAAGGGCCTGTCCGACGCCCTACGACAGTGCCCACGTACGAGAAG 900
                                                                                                    CACAAAIGIGGAIAIIGIGGCCGAAGCTAIAAACAGCGAACGICTIIAGAGGAACAIAAA 660
                                                                                                                                                                                                                 661 gagcgctgccacaactacttggaaagcatgggccttccgggcacactgtacccagtcatt 720
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420
                                                                             541 GCCTGCCGCCGGAGGGACGCCCTCACTGGCCACCTGAGGACGCACTCCGTTGGTAAACCT
                                                                                                                                                                                 CICCGGCACATCAAGCTGCATTCCGGGGAGAAGCCCTTCAAATGCCACCTCTGCAACTAC
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Human; open reading frame; ORFX; detection; cytostatic; hepatotropic; auticorary; antipsoriatic; antiparkinsonian; nootropic; neuroprotective; anticorulisant; osteopathic; antiarthritic; immunosuppressant; cardiant; immunostimulant; thrombolytic; coaquiant, vasotropic; antidiabetic; antiviabetic; antiviabetic; antiviabetic; antiviabetic; antiviabetic; antitiabetic; antitiabetic; antitianemic; gene therapy; cancer; proliferative disorder; hypertension; cardiovascular disease; diabetes mellitus; hypothyroidism; SCID; ADS; severe combined immunodeficiency; malaria; autoimmune disorder; alpease severe combined immunodeficiency; malaria; autoimmune disorder; asthma; allergy; aplastic anaemia; nocturnal haemoglobinuria; burn; wound; theraphy.
          1321 aactcgcaggacgcgctccgcgtggtcagcaccagcgggggagcagatgaaggtgtacaag 1380
                                  1381 TGGGAACACTGCCGGGTGCTCTTCCTGGATCACGTCATGTACACCATCCACATGGGCTGC 1440
                                              1441 CACGCCTTCCGTCATCCTTTGAGTGCAACATGTGCGGCTACCACAGCCAGGACCGGTAC 1500
                                                                                         1501 GAGTICTCGTCGCACATAACGCGAGGGGAGCACCGCTTCCACATGAGCTAA 1551
                                                                                                                                            Human ORFX ORF2097 polynucleotide sequence SEQ ID NO:4193.
                                                                                                                                                                                                              AAC76542 standard; cDNA; 6439 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      02-APR-1999; 99US-0127636.
05-APR-1999; 99US-0127728.
30-MAR-2000; 2000US-0540763.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  31-MAR-2000; 2000WO-US08621.
                                                                                                                                                                                                                                                              08-FEB-2001 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            99US-0127607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WO200058473-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens.
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AAC76542
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antidiabetic; hypotensive; dermatological; immunosuppressive;
antiinflammatory; antibacterial; antiviral; antifungal; antirheumatic;
antithyroid; and antianaemic. The sequences can be used for determining
the presence of or predisposition to, or preventing or treating
pathological conditions associated with an OREX-associated disorder. The
cucleic acids can be used to express OREX proteins in gene therapy
oncleic acids can be used to express OREX proteins in gene therapy
of nucleic acids any be used to treat cancers,
proliferative disorders, neurodegenerative disorders, osteoarthritis,
proliferative disorders, neurodegenerative disorders, osteoarthritis,
draft vs host disease, cardovascular disease, diabetes mellitus,
bypertension, hypothyroidism, cholesterol ester storrage, systemic lupus
cerythematosus, severe combined immunodeficiency (SCID), AIDS, viral,
bacterial or fungal infection, malaria, autoimmune disorders, asthma,
allergies, aplastic anaemia, burns, wounds, bone and cartilage damage,
cocturnal haemoglobinuria, antiinflammatory disease; to enhance
                                                                                                                                                                                                                                                                                                                                                                                                                          121 TCGGGAGGACAGCAAAGCTCCAAGAGTGACAGAGTCGTGGCCAGTAATGTTAAAGTAGAG 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GATTTACGAATGCTTGATGCCTCGGGAGAGAAATGAATGGCTCCCACAGGGACCAAGGC 300
                                                                                                                                                                                                                                                                                                                                            9; Gaps
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGAGAACGGCCCTTCCAGTGCAATCAGTGCGGGCCTCATTCACCCAGAAGGGCAACCTG 480
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           661 GAGCGCTGCCACAACTACTTGGAAAGCATGGGCCTTCCGGGCACACTGTACCCAGTCATT 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAAGAAGAAACTAAGCACAGTGAAATGGCAGAAGACCTGT6CAAGATAGGATCAGAGA 780
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                                                                                                                                                                                                                                                   Sequence 6439 BP; 1721 A; 1568 C; 1498 G; 1652 T; 0 other;
                                                                                                                                                                                                                                                                                                                                       27; Indels
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                                                                                                                                                                                                                                                                                                                                     0; Mismatches
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AAC74446 to AAC77606 encode the proteins given in AAB40237 to AAB43397, which represent the human ORFX open reading frames 1 to 3161. The ORFX sequences have activities such as: cytostatic; hepatotropic; vulnerary; antipsoriatic; antiparkinsonian; nootropic; neuroprotective; osteopathic; anticonvulsant; antiarthritic; immunosuppressant; immunostimulant; cardiant; thrombolytic; coagulant; vasotropic;

Novel nucleic acids and peptides derived from open reading frame X,

Shimkets RA, Leach M; (CURA-) CURAGEN CORP.

WPI: 2000-602362/57.

P-PSDB; AAB42333

useful for treating e.g. cancers, proliferative disorders, neurodegenerative disorders and cardiovascular disease

for treating

Claim 5; Page 3386-3390; 5507pp; English.

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1372 GIGTACAAGIGCGAACACIGCCGGGIGCTCTTCCTGGAICACGTCAIGIACACCAICCAC 1431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1549 gigiacaagigogaacacigocogogigeteticetogaatcacogicaigiacaccaiccac 1608
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                                                                                                                                                                                                                                                                                                                                                                                    1255 CGCGCGC---AACGCGTGTCGCTCAAGGAGGAGCACCGCGCCTACGACCTGCTGCGCGCC 1311
                                                                                                                                                                                                                                                                                                1189 gtcccggtcatcagcccgatgtaccagctgcacaagccgctcgcggagggcaccccgcgc 1248
                                                                                                                                                                                                                                                                                    1135 TIGGIGCCCICGGAGCGCGAGGCGICCCCGAGCAACAGCIGCCAAGACICCACGGACACC 1194
                                                                                                                                                                                                                                                                                                                              958 TACCTGGGGGCCGAGTCCCTGCGCCCGCTGGTGCAGACGCCCCGGGCGGTTCCGAGGTG 1017
                                                                                                                                                                1018 GTCCCGGTCATCAGCCCGATGTACCAGCTGCACA---GGCGCTCGGAGGGCACCCCGCGC 1074
                    889 aaagaagaaactaatcacagtgaaatggcagaagacctgtgcaagataggatcagagaga 948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ikaros; transgene; transgenic animal; transgenic mouse; hIk-1;
immunocomprised; immune system disorder; nervous system disorder;
                                                                841 AAATTICTIGGGGACAAGGGCCTGTCCGACACGCCCTACGA---CAGTGCCACGTACGAG
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                09-MAY-1996 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Human Ikaros cDNA hIk-1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  animal model; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens
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An almost full-length cDNA sequence (AAT16060) codes for part (AAR92015) of the human Ikaros protein, a master regulator of haematopoietic differentiation. It was isolated from a T-cell line Jurkat cDNA library using a mouse Ikaros cDNA clone as probe. The human Ikaros gene maps to pll.2-pl3 on chromosome 7. Different isoforms (see AAR92014 and AAR92016-19) of mouse Ikaros have also been isolated. Transgenic animals, pref. mice, having a mutated Ikaros transgene, esp. a mutation that alters the DNA binding domain of the Ikaros protein, are used as models to determine the effects of treatments for immune or nervous system
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              406 AAAAGAAGCCACACTGGAGAACGGCCCTTCCAGTGCAATCAGTGGGGGGCCTCATTCACC 465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121 cacagggaccaaggcagctcggcttgtcgggagttggaggcattcgacttcctaacgga 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Gaps
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                                                                                                                                                                                                                                                                                                                                                  Transgenic rodent having Ikaros trans-gene (pref. mutated) - is severely immuno-compromised and can be used as model to determine effects of treatment for immune and nervous system disorders
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 1386; DB 17; Length 1386; Pred. No. 3.3e-301; 0; Mismatches 0; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 1386 BP; 350 A; 403 C; 395 G; 238 T; 0 other;
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100.0%; Pred. No. ...
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                      Disclosure; Fig 2; 102pp; English.
                                                                                           550..681
/*tag= d
/label= Exon-6
682..1383
                    256..423
/*tag= b
/label= Exon-4
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/label= Exon-7
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/label= Exon-5
/*tag= a
/label= Exon-3
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                                                         424..549
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                                                                                                                                                                                                                                                                                                                                       P-PSDB; AAR92015
                                                                                                                                                                                                                                                                                                   Georgopoulos K;
                                                                                                                                                                                                                                                    29-JUL-1994;
                                                                                                                                                                                                                            28-JUL-1995;
                                                                                                                                                                             WO9604372-A1
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241 aaaagaagccacactggagaacggcccttccagtgcaatcagtgcggggcctcattcacc 300
                    466 CAGAAGGGCAACCIGCICCGGCACAICAAGCIGCAITCCGGGGAGAGGCCCIICAAAIGC 525
                                                                                                                                                                                                                                                                                                                                                                         AACGCCATCAACTACCTGGGGGCCGAGTCCCTGCGCCGGTGGTGGAGACGCCCCGGGC 1005
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                                 361 cacctctgcaactacgcctgccgcggaggacgcctcactggccacctgaggacgcac 420
                                                                                                         TCCGTTGGTAAACCTCACAAATGTGGATATTGTGGCCGAAGCTATAAACAGCGAACGTCT 645
                                                                                                                      TIAGAGGAACATAAAGAGGGCTGCCACAACTACTTGGAAAGCATGGGCCTTCCGGGCACA 705
                                                                                                                                                                                                       765
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1246 ATCGCCCGACGCGCGAACGCGTGTCGCTCAAGGAGGAGCACCGCGCCTACGACCTGCTG 1305
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                                                                                                                                                                                                                                                                                   AGCTCTATGCCTCAGAAATTTCTTGGGGACAAGGGCCTGTCCGACACGCCCTACGACAGT 885
                                                                                                                                                                                                                                                                                                                              GCCACGTACGAGAAGGAGAACGAAATGATGAAGTCCCACGTGATGGACCAAGCCATCAAC 945
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                                                                                                                                                             CTGTACCCAGTCATTAAAGAAGAAAACTAAGCACAGTGAAATGGCAGAAGACCTGTGCAAG
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CD3-delta gene; Ikaros gene; T cell; progenitor stem cell; leukaemia; differentiation marker; immune system; corpus striatum; AIDS;
                                                                                                                                                                                                                                                                                                                    Ikaros poly:peptide(s) - useful for treating disorders of immune
                                                                                                                                                                                                                                                                                                                                          Disclosure; Column 55-58; 111pp; English.
                                                                                                                                                    Location/Qualifiers
                                                                                                                                                                   /*tag= a
/product= "Ikaros"
                                                 AAV66969 standard; cDNA; 1386 BP.
                                                                                                                                                                                                                                        92US-0946233.
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                                                                                                                                                                                                                                   94US-0238212
                                                                                                                                                                                                                                                 93US-0121438.
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                                                                                           Human Ikaros encoding cDNA.
                                                                             (first entry)
                                                                                                                                                                                                                                                                     (GEHO ) GEN HOSPITAL CORP.
                                                                                                                                                                                                                                                                                                                             system or corpus striatum
                                                                                                                       Alzhelmer's disease; ss.
                                                                                                                                                            .1386
                                                                                                                                                                                                                                                                                                  WPI; 1998-582621/49.
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1546 AGCTAA 1551
             1381 agctaa 1386
                                                                                                                                                                                                                                                                                     Georgopoulos K;
                                                                                                                                     Homo sapiens.
                                                                             14-JAN-1999
                                                                                                                                                                                                                   05-JUN-1995;
                                                                                                                                                                                                                                  02-MAY-1994;
14-SEP-1992;
                                                                                                                                                                                       US5824770-A.
                                                                                                                                                                                                     20-0CT-1998
                                                                                                                                                                                                                                                       05-JUN-1995;
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                                                               AAV66969;
                                          AAV66969
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The present invention describes a purified peptide having at least one of the following properties: (a) it stimulates transcription of a DNA control of a delta A element, an NFKB element or an ikaros binding oligonucleotide consensus sequence; (b) it binds to any of consensus sequence; (c) it competitively inhibits the binding of a naturally occurring ikaros isoform to any of a delta A element, an NFKB element or an ikaros binding oligonucleotide consensus sequence; (d) it competitively inhibits reares binding oligonucleotide consensus sequence; (d) it competitively inhibits is interactions of transcription in the proteins, provided comed with naturally occurring ikaros isoforms. The proteins, provided that they stimulate gene transcription under the control of delta A elements and/or ikaros-binding oligonucleotides, competitively inhibit binding of naturally occurring ikaros isoforms to delta A elements, NFKB elements and/or ikaros-binding oligonucleotides, competitively inhibit ikaros binding or ikaros-responsive elements and/or competitively inhibit ikaros binding or ikaros-responsive elements and/or competitively inhibit ikaros binding to ikaros-responsive elements and/or competitively inhibit ikaros isoforms, can be used to treat immune system disorders, e.g. leukaemia or AlDS, or corpus striatum disorders, e.g.

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P-PSDB; AAR46964.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1066 ACCCGGGGTCCAACCACTCGGCCCAGGACAGCGCCGTGGAGTACCTGCTGCTGCTCC 1125
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        841 ggitccgaggtggtcccggtcatcagcccgatgtaccagctgcacaggcgctcggagggc 900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCCACGTACGAGAAGGAGAAAGGAAATGATGAAGTCCCACGTGATGGACCAAGCCATCAAC 945
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        661 agcictatgccicagaaattictiggggacaagggccigiccgacacgccctacgacagt 720
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                                                                                                                                                                                                                                              406 AAAAGAAGCCACACTGGAGAACGGCCCTTCCAGTGCAATCAGTGCGGGGCCTCATTCACC 465
                                                                                                                                                                                                                                                                                                                                 466 CAGAAGGGCAACCIGCICCGGCACAICAAGCIGCAIICCGGGGAGAAGCCCIICAAAIGC 525
                                                                                                                                                                                                                                                                                                                                                       301 cagaagggcaacctgctccggcacatcaagctgcattccgggggagaagcccttcaaatgc 360
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                                                                                                                                                                                                                                 346 AAACTAAAGTGTGATATCTGTGGGATCATTTGCATCGGGCCCAATGTGCTCATGGTTCAC 405
                                                                                                                                                                                                                                                                                             286 CACAGGGACCAAGGCAGCTCGGCTTTGTCGGGAGTTGGAGGCATTCGACTTCCTAACGGA 345
                                                                                                                                                                                                         121 cacagggaccaaggcagctcggctttgtcgggagttggaggcattcgacttcctaacgga 180
                                                                                  0; Gaps
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                                                             Indels
Sequence 1386 BP; 350 A; 403 C; 395 G; 238 T; 0 other;
                                   Match Rocal Similarity 100.0%; Pred. No. 3.3e-301; Nes 1386; Conservative 0; Mismatches 0;
                                                                 Matches 1386; Conservative
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1486 AGCCAGGACCGGTACGAGTTCTCGTCGCACATAACGCGAGGGGAGCACCGCTTCCACATG 1545
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961 aaggccaagttggtgccttggagtggggggggtccccgagcaacagctgccaagactcc 1020
                                     1246 ATCGCCCGACGCGCAACGCGTGTCGCTCAAGGAGGAGCACCGCGCCTACGACCTGCTG 1305
                                                                                                                                1306 CGCGCCGCCTCCGAGAACTCGCAGGACGCGCTCCGCGTGGTCAGCACCAGCGGGGAACAG 1365
                                                                                                                                                                                                                                1141 cgcgccgcctccgagaaatcgcaggacgcgctccgcgtggtcagcaccagcggggagcag 1200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The Ikaros gene encodes a zinc finger protein which can be used in a therapeutic composition to treat animals with an immune system
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ikaros; zinc finger; protein; immune disorder; therapy; treatment;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   T-cell pathway regulatory gene, Ikaros - encodes family of unique zinc finger proteins, useful for treating immune system disorders
                                                                                                                                                                                                                  /product= Peptide with Ikaros activity.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Claim 13; Page 44-46; 112pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Human Ikaros peptide coding sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                corpus striatum; regulatory gene; ss
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAQ44980 standard; cDNA; 1611 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          93WO-US08743.
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disorder. It may also be used for assessing whether a subject is at risk for an immune disorder. It is of particular use in treating a disorder of the corpus striatum.
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Sequence 1611 BP; 375 A; 484 C; 480 G; 272 T; 0 other;

ö 160 GCCAGTAATGTTAAAGTAGAGACTCAGAGTGATGAAGAGAATGGGGGGTGCCTGTGAAATG 219 220 AAIGGGGAAGAAIGIGGGGAGGAITIACGAAIGCIIGAIGCCICGGGAGAGAAAAIGAAI 279 280 GGCTCCCACAGGGACCAAGGCAGCTCGGCTTTGTCGGGAGTTGGAGGCATTCGACTTCCT 339 340 AACGGAAAACTAAAGTGTGATATCTGTGGGATCATTTGCATCGGGCCCAATGTGCTCATG 399 0; Gaps GTTCACAAAAGAAGCCACACTGGAGAACGGCCCTTCCAGTGCAATCAGTGCGGGGGCCTCA 459 520 AAAIGCCACCICTGCAACTACGCCTGCCGCGGAGGGACGCCCTCACTGGCCACCTGAGG 579 580 ACGCACTCCGTTGGTAAACCTCACAAATGTGGATATTGTGGCCGAAGCTATAAACAGCGA 639 997 atcaacaacgccatcaactacctgggggccgagtccctgcgccgctggtgcagacgcc 1056 GGCACACTGTACCCAGTCATTAAAGAAGAAACTAAGCACAGTGAAATGGCAGAAGACCTG 759 760 TGCAAGATAGGATCAGAGATCTCGTGGTGGACAGACTAGCAAGTAATGTCGCCAAA 819 1060 GAGGGCACCCCGGGGTCCAACCACTCGGCCCAGGACAGCGCCGTGGAGTACCTGCTGCTG 1119 CGTAAGAGCTCTATGCCTCAGAAATTTCTTGGGGACAAGGGCCTGTCCGACACGCCCTAC 879 Gftaagagctctatgcctcagaaatttcttggggacaagggcctgtccgacacgccctac GACAGTGCCACGTACGAGAAGGAGAACGAAATGATGAAGTCCCACGTGATGGACCAAGCC 939 940 ATCAACAACGCCATCAACTACCTGGGGGCCGAGTCCCTGCGGCCGGTGGTGCAGACGCCC 999 89.1%; Score 1382.4; DB 15; Length 1611; 99.6%; Pred. No. 2.2e-300; tive 0; Mismatches 6; Indels 0; 640 ACGICITIAGAGGAACAIAAAGAGCGCIGCCACAACIACIIGGAAAGCAIGGGCCIICCG Best_Local Similarity 99.6 Matches 1386; Conservative Query Match 817 820 877 à g ò g ð g ó g ò g á 셤 q ò g ò ò 셤 ò g g å ò g ò 셤 ò

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1117 gagggcaccccgcgctccaaccactcggcccaggacagcgccgtggagtacctgctgctg 1176
                 1120 CTCTCCAAGGCCAAGTTGGTGCCCTCGGAGCGCGAGCGTCCCGAGCAACAGCTGCCAA 1179
                                   1177 ctctccaaggccaagttggtgccctcggaggcgcgagggggcccggagcaacagctgccaa 1236
                                                    1240 AACCACATCGCCCGACGCGCGAACGCGTGTCGCTCAAGGAGGAGGAGCACCGCGCCTACGAC 1299
                                                                                                   1300 CTGCTGCGCCGCCCTCCGAGAACTCGCAGGACGCGCTCCGCGTGGTCAGCACCAGCGGG 1359
                                                                                                                                                                1360 GAGCAGAIGAAGGIGTACAAGIGCGAACACIGCCGGGIGCICIICCIGGAICACGICAIG 1419
                                                                                                                                                                          1420 TACACCATCCACATGGGCTGCCACGGCTTCCGTGATCCTTTTGAGTGCAACATGTGGGGC 1479
                                                                                                                                                                                                             1480 TACCACAGCCAGGACCGGTACGAGTTCTCGTCGCAATAACGCGAGGGGAGCACCGCTTC 1539
                                                                                                                                                                                                                                                 Ikaros; hIK-1; transcription factor; human; lymphocyte;
cell differentiation; T cell; cancer; immunodeficiency;
Alzheimer's disease; therapy; diagnosis; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                        AAV42806 standard; cDNA; 1386 BP.
                                                                                                                                                                                                                                                                                                                                                                                             Human Ikaros isoform hik-1 cDNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /number= Ex3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /number- Ex4
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97CA-2194256

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New nucleic acid encoding Ikaros protein involved in early differentiation of lymphocytes - existing in several isoforms, and related products, used to treat e.g. immune diseases or cancer and to control cell differentiation
                                                                                                  Claim 7; Page 70-72; 158pp; English.
    96US-0711417.
                 (GEHO ) GEN HOSPITAL CORP
                                             WPI; 1998-378292/33
                                                     P-PSDB; AAW70964.
                                Georgopoulos K;
     05-SEP-1996;
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This is the nucleotide of human Ikaros CDNA (isoform hIK-1) that codes for a 461-amino acid zinc finger protein (see AAW70964) that is involved in the early differentiation of lymphocytes. It was involved in the early differentiation of lymphocytes. It was involved in the early differentiation of lymphocytes. It was involved in the latter of the protein of the library using mouse Ikaros exon isolated from a Jurkat T cell line library using mouse Ikaros exon cromosome 7. The human and murine Ikaros sequences (see AAV42805-11 chromosome 7. The human and murine Ikaros sequences (see AAV42805-11 chromosome 7. The human and murine Ikaros protein isoforms. These are used to treat T and B cell expressing Ikaros proteins. These are used to treat T and B cell carpers of control of an Ikaros-responsive element, to treat T and B cell cancers), to control expression of heterologous genes placed under control of an Ikaros-responsive element, to treat nervous system control of an Ikaros-responsive element, to treat nervous system amplification or differentiation, especially in haematopoietic cancer of inhibit interaction with DNA sequences. The same effect can be achieved with Ikaros-pinding oligonucleotides. Examining can be achieved with Ikaros gene, or its allelic structure, can be to assess risk of acquiring the above diseases.

Sequence 1386 BP; 352 A; 403 C; 397 G; 234 T; 0 other;

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CACCICTGCAACTACGCCTGCCGCGGAGGGACGCCCTCACTGGCCACTGAGGACGCAC 585
                                                                                                                                                                                           181 aaactaaagtgtgatatctgtgggatcatttgcatcgggcccaatgtgctcatggttcac 240
                                                                                                                                                                                                                 406 AAAAGAAGCCACACIGGAGAACGGCCCTICCAGIGCAAICAGIGCGGGGCCICAITCACC 465
                                                                                                                                                                                                                                      300
                                                                                                                                                                                                                                                           CAGAAGGCCAACCTGCTCCGGCACATCAAGCTGCATTCCGGGGAGAAGCCCTTCAAATGC 525
                                                                                                                                                                                                                                                                       361 cacttigcaactacgcctgccgccggagggacgccctcactggccacctgaggacgcac 420
                                                                                                                                                                     346 AAACTAAAGTGTGATATCTGTGGGATCATTTGCATCGGCCCCAATGTGCTCATGGTTCAC 405
                                        CACAGGGACCAAGGCAGGTCGGCTTTGTCGGGGAGTTGGAGGTTCGACTTCCTAACGGA 345
                                                                                                                                        0; Gaps
                                                                                                                                                                                                                            DB 19; Length 1386;
                    4; Indels
  88.9%; Score 1379.6; DB 1
99.7%; Pred. No. 8.9e-300;
tive 0; Mismatches 4;
                          Matches 1382; Conservative
                  Local Similarity
         Query Match
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1426 ATCCACATGGGCTGCCACGGCTTCCGTGATCCTTTGAGTGCAACATGTGCGGCTACCAC 1485
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1141 cgcgccgcctccgagaaatcgcaggacgcgctccgcgtggtcagcaccagcggggagcag 1200
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                                                                                                                                                                                                                                                                                                                                                                                                                                                           1126 AAGGCCAAGTTGGTGCCCTCGGAGCGCGTCCCCGAGCAACACAGCTGCCAAGACTCC 1185
                                                                                                                                                                                                                                                                                                                                                                                                                          1066 ACCCCGCCTCCAACCACTCGGCCCAGGACAGCGCCGTGGAGTACCTGCTGCTGCTCC 1125
                                                                                                                                                                                                                                                                          946 AACGCCATCAACTACCTGGGGGCCGAGTCCCTGCGCCCGCTGGTGCAGACGCCCCCGGGC 1005
                                                                                                                                                                                                                                                                                                                      1006 GGTTCCGAGGTGGTCCCGGTCATCAGCCCGATGTACCAGCTGCACAGGCGCTCGGAGGGC 1065
                                                                                                                                                                                                                                                                                                                                                                                          901 acccegogotecaaccacteggoccaggacagogoteggagtacotgotgotector 960
                                                                                                                                                                                                                                                                                                                                             841 ggttccgaggtggtcccggtcatcagcccgatgtaccagctgcacaggcgctcggagggc 900
                                                                                                                                                                                 886 GCCACGTACGAGAAAGGAGAAAGGAAATGATGAAGTCCCACGTGATGGACCAAGCCATCAAC 945
                                            Tragaggaacatraagagcgcrgccacaacracracrrggaaagcarcggccrrccgggacaca 705
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TCCGTTGGTAAACCTCACAAATGTGGATATTGTGGCCGAAGCTATAAACAGCGAACGTCT 645
            766 AIAGGAICAGAGAGAICICICGIGCIGGACAGACIAGCAAGIAAIGICGCCAAACGIAAG
                                                                                                      706 CTGTACCCAGTCATTAAAGAAGAAACTAAGCACAGTGAAATGGCAGAAGACCTGTGCAAG
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Ikaros; transgene; transgenic animal; transgenic mouse; mIk-1;
immunocomprised; immune system disorder; nervous system disorder;
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                                                                               Location/Qualifiers
223..1779
                                                                                                               'label= Exon-1/2
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/label= Exon-3
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/label= Exon-5
                                                                                                                                                     label= Exon-4
                                                                                                                                                                                             /label= Exon-6
                                                                                                                                                                                                                 /label= Exon-7
             09-MAY-1996 (first entry)
                                                                                                                                                                                                                                                        95WO-US09345
                                                                                                                                                                                                                                                                    94US-0283300
                                                                                                                                                                                                    1069..1776
                          Murine Ikaros cDNA mIk-1.
                                                                                                                      ..642
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                                                                                                  .381
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                                                                                                                                          643..810
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                                                                                                                                                                                                                                                                                             Georgopoulos K;
                                                                 Mus musculus
                                                                                                                                                                                                                            WO9604372-A1
                                                                                                                                                                                                                                                      28-JUL-1995;
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 AAT16062
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Disclosure; Page 65-67; 102pp; English.

cDNA clones (AAT16059 and AAT16061-64) encode different isoforms, mlk-2, mlk-1, mlk-4 and mlk-5 (AAR92014 and AAR92016-19, benevolately), of the mouse Ikaros protein, a master regulator of thematopoietic differentiation. They were isolated from a mature T-cell line E-14 cDNA library. The isoforms arise by differential E), but have different combinations of exons E3-E6 encoding a zinc finger domain. Transgenic animals, pref. mice, having a mutated Ikaros transgene, esp. a mutation that alters the DNA determine the effects of treatments for immune or nervous system

Sequence 2049 BP; 514 A; 531 C; 574 G; 430 T; 0 other;

75.7%; Score 1174.8; DB 17; Length 2049; 87.2%; Pred. No. 7.8e-254; Query Match Best Local Similarity

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223 atggatgtcgatgagggtcaagacatgtcccaagtttcaggaaaggagagcccccagtc 282
                                                      61 AGCGATACTCCAGATGAGGGGGATGAGCCCATGCCGATCCCCGAGGACCTCTCCACCACC 120
                                                                121 TCGGGAGGACAGCAAAGCTCCAAGAGTGACAGAGTCGTGGCCAGTAATGTTAAAGTAGAG 180
                                                                                                     241 GATTTACGAATGCTTGATGCCTCGGGAGAGAAATGAATGGCTCCCACAGGGACCAAGGC 300
                 301 AGCICGGCITIGICGGGAGTIGGAGGCAITCGACTICCTAACGGAAAACTAAAGTGTGAI 360
                                                                                                                                                                                                                     421 GGAGAACGGCCCTTCCAGTGCAATCAGTGCGGGGCCTCATTCACCCAGAAGGGCAACCTG 480
                                                                                                                                                                                                                                                                                              481 CTCCGGCACATCAAGCTGCATTCCGGGGAGAAGCCCTTCAAATGCCACCTCTGCAACTAC 540
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       24;
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1435 ------GGCTGCCACGCTTCCGTGATCCTTTTGAGTGCAACATGTGCGGCTACCAC 1485
                                                                                                                                                                                                                                                          CD3-delta gene; Ikaros gene; T cell; progenitor stem cell; leukaemia; differentiation marker; immune system; corpus striatum; AIDS;
                                                                                           1258 GCGC---AACGCGTGTCGCTCAAGGAGGAGCACCGCGCCTACGACCTGCTGCGCGCCGCC 1314
                                                                                                                                           1474 gcacgcaatgggctggctctcaaggaggaggagcagcgcctacgaggtgctgaggggggcc 1533
                                                                                                                                                               1534 tcagagaactcgcaggatgccttccgtgtggtcagcacgagtggcgagcagctgaaggtg 1593
                                                                                                                                                                                                      1375 TACAAGTGCGAACACTGCCGGGTGCTTCCTGGATCACGTCATGTACACCATCCACATG 1434
                                      1138 GTGCCCTCGGAGCGGAGCGACCCCGAGCAACAGCTGCCAAGACTCCACGGACACCGAG 1197
                                                            1354 grgtcatoggagogagagoctococogagoaacagotgocaagactocaacagatacagag 1413
                                                                                1078 AACCACTCGGCCCAGGACAGCGCCGTGGAGTACCTGCTGCTGCTCCCAAGGCCCAAGTTG 1137
         Location/Qualifiers
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mouse Ikaros encoding cDNA mIk-1.
                                                                                                                                                                                                                                                                                                                                                                                                        AAV66971 standard; cDNA; 2049 BP.
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93US-0121438.
95US-0465590.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Alzheimer's disease; ss.
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The present invention describes a purified peptide having at least one of the following properties: (a) it stimulates transcription of a DNA of the following properties: (a) it stimulates transcription of a DNA sequence under the control of a delta A element, an NRKB element or an Ikaros binding oligonucleotide consensus sequence; (b) it binds to any of a delta A element, an NRKB element or an ikaros binding oligonucleotide consensus sequence; (c) it competitively inhibits the binding of a consensus sequence; (c) it competitively inhibits ikaros binding oligonucleotide consensus sequence; (d) it element or an ikaros binding oligonucleotide consensus sequence; (d) it competitively inhibits ikaros binding to ikaros responsive element; or competitively inhibits protein-protein interactions of transcriptional complexes (e) it inhibits protein-protein interactions of transcriptional complexes of that they stimulate gene transcription under the control of delta A elements and/or ikaros-binding oligonucleotides, being a elements. NRKB elements and/or ikaros-binding oligonucleotides, colleta A elements inhibit binding of naturally occurring ikaros isoforms to competitively inhibit ikaros isoforms of transcriptional complexes with inhibit protein protein interactions of transcriptional complexes with inhibit protein protein interactions of transcriptional complexes with inhibit protein protein interactions of transcriptional complexes with inhibit protein protein staros binding to ikaros-responsive elements and or allowed a specifically of allowance or corpus striatum disorders, e.g. leukaemia or AlDS, or corpus striatum disorders, e.g. claimed mouse Ikaros protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                481 CICCGGCACATCAAGCIGCATICCGGGGAGAAGCCCTICAAAIGCCACCICIGCAACIAC 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              421 GGAGAACGGCCCTTCCAGTGCAATCAGTGCGGGGCCTCATTCACCCAGAAGGGCAACCTG 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                241 GATITACGAATGCTTGATGCCTCGGGAGAGAAAATGAATGGCTCCCACAGGGACCAAGGC 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           121 TCGGGAGGACAGCAAAAGCTCCAAGAGTGACAGAGTCGTGGCCAGTAATGTTAAAGTAGAG 180
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 AIGGAIGCIGACGAGGGICAAGACAIGICTIICICAICAGGGAAGGAAAGCCCCCTGIA 60
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
75.7%; Score 1174.8; DB 19; Length 2049;
Best Local Similarity 87.2%; Pred. No. 7.8e-254;
Matches 1365; Conservative 0; Mismatches 177; Indels 24;
                                                   (karos poly:peptide(s) - useful for treating disorders of immune
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 2049 BP; 514 A; 531 C; 574 G; 430 T; 0 other;
                                                                                                                        Disclosure; Column 61-66; 111pp; English.
                                                                                      system or corpus striatum
            WPI; 1998-582621/49.
                                P-PSDB; AAW72674
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703 ctgcggcacatcaagctgcactcgggtgagaagcccttcaaatgccatcttgcaactat 762
                     541 GCCIGCCGCCGGAGGGACGCCCTCACTGGCCACCTGAGGACGCACTCCGTIGGTAAACCT 600
                                1021 CCGGTCATCAGCCCGATGTACCAGCTGCACAGG---CGCTCGGAGGCCACCCCGCGCTCC 1077
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This is the nucleotide of mouse Ikaros cDNA (isoform mIk-1) that codes for a 518-amino acid zinc finger protein (see AAW70966) that is involved in the early differentiation of lymphocytes. mIk-1 cDNA was isolated from a mature murine T cell line E14 library using a 300 bp fragment from the 3' end of mIk-2 cDNA (see AAW42805 and Probe. 5 Different isoforms of mouse Ikaros (see AAW42805 and AAW42807-10) have been identified. These arise by differential splicing of Ikaros gene transcripts. Isoform mIk-1 contains all 7 exons. It is abundantly expressed in the early foetal liver, the maturing thymus and the postnatal spleen. The Ikaros gene is located at the proximal arm of murine chromosome 11. Ikaros
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               New nucleic acid encoding Ikaros protein involved in early differentiation of lymphocytes - existing in several isoforms, and related products, used to treat e.g. immune diseases or cancer and to control cell differentiation
                                                                                            Ikaros; mIK-1; transcription factor; mouse; lymphocyte;
cell differentiation; T cell; cancer; immunodeficiency;
Alzheimer's disease; therapy; diagnosis; ss.
                                                                                                                                                                        Location/Qualifiers
223..1779
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AAV42808 standard; cDNA; 2049 BP
                                                                        Mouse Ikaros isoform mIk-1 cDNA.
                                                                                                                                                                                                                                   /number= Ex1/2
385..643
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1077..1779
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                                                11-JAN-1999
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proteins are suggested to play a role as a genetic switch regulating entry into the T cell lineage. The murine and human (see AAV42806, AAV42811 and AAV42840) [Karos sequences are very similar. The livention provides Ikaros mucleic acids, vectors and host cells expressing Ikaros proteins. These are used to treat T and B cell diseases (e.g. immune deficiencies caused by drugs, radiation or cancers), to control expression of heterologous genes placed under control of an Ikaros-responsive element, to treat nervous system diseases (e.g. Alzheimer's disease) and to modulate cell division, amplification or differentiation, especially in haematopoietic cells. Some Ikaros isoforms are antagonistic of others and may be used to inhibit interaction with DNA sequences. The same effect can be achieved with Ikaros-binding oligonucleotides. Examining the expression of the Ikaros gene, or its allelic structure, can be used to assess risk of acquiring the above diseases.
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Sequence 2049 BP; 514 A; 531 C; 574 G; 430 T; 0 other;

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CACAAATGTGGATATTGTGGCCGAAGCTATAACAGCGAACGTCTTTAGAGGAACATAAA 660
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                                                                                             61 AGGATACTCCAGATGAGGGGATGAGCCCATGCCGAGGACCTCTCCACCACC 120
                                                                                                          24; Gaps
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                                                                                                                                                                                                        CCGGTCATCAGCCCGATGTACCAGCTGCACAGG---CGCTCGGAGGGCACCCCGCGCTCC 1077
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                                                                                                              901 GAGAACGAAATGATGAAGTCCCACGTGATGGACCAAGCCATCAACAACGCCATCAACTAC 960
                      781 ICTCTCGTGCTGGACACTAGCAAGTAATGTCGCCAAACGTAAGAGCTCTATGCCTCAG 840
940 aaggaagaaactaaccacaacgagatggcagaagacctgtgcaagataggagcagagagg 999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ikaros; transgene; transgenic animal; transgenic mouse;
immunocomprised; immune system disorder; nervous system disorder;
                                                                                                                             AAT16065 standard; cDNA; 1004 BP.
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                                                                                                                                                                                                                                                                                                                    A cDNA clone (AAT16065) coding for an Ikaros protein (AAR92020) has been identified. Transgenic animals, pref. mice, having a mutated Ikaros transgene, esp. a mutation that alters the DNA binding domain of the Ikaros protein, are used as models to determine the effects of treatments for immune or nervous system
                                                                                                                                                                                                                                    Transgenic rodent having Ikaros trans-gene (pref. mutated) - is severely immuno-compromised and can be used as model to determine effects of treatment for immune and nervous system disorders
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0; Indels 126;
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                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 1004 BP; 235 A; 328 C; 286 G; 155 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 56.0%; Score 868; DB 17; 88.8%; Pred. No. 3.8e-185;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Mismatches
                                                                                                                                                                                                                                                                                              Disclosure; Page 71-73; 102pp; English.
                                                                                                                94US-0283300.
                                                                                     95WO-US09345.
                                                                                                                                         (GEHO ) GEN HOSPITAL CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches 1004; Conservative
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P-PSDB; AAR92020.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity
                                                                                                                                                                     Georgopoulos K;
  Not specified
                            WO9604372-A1
                                                                                 28-JUL-1995;
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                                                                                                                             1141 CCCTCGGAGCGCGAGGCGTCCCCGAGCAACAGCTGCAAGACTCCACGGACACCGAGGG 1200
                                                                                                                                                                       1261 CAACGCGTGTCGCTCAAGGAGGAGCACCGCGCCTACGACCTGCCGCGCCGCCGCCGCAG 1320
                                                                                                                                                                                                                                                             1381 TGCGAACACTGCCGGGTGCTCTTCCTGGATCACGTCATGTACACCATCCACATGGGCTGC 1440
                                                  1441 CACGGCITCCGTGATCCTTTTGAGTGCAACATGTGCGGCTACCACAGGCCAGGACCGGTAC 1500
           775 aactigcaggacgcgctccgcgtggtcagcaccagcgggggagcagatgaaggtgtacaag 834
                                                                                                                                                                                                                                                                                                                   CD3-delta gene; Ikaros gene; T cell; progenitor stem cell; leukaemia; differentiation marker; immune system; corpus striatum; AIDS; Alzheimer's disease; ss.
                                                                                                                                                                                                                                                                       /note= "no stop codon given"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /*tag= a
/product= "Ikaros isoform"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAV66974 standard; cDNA; 1004 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ikaros isoform encoding cDNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        94US-0238212.
92US-0946233.
93US-0121438.
95US-0465590.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .1004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Unidentified.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   14-SEP-1992;
14-SEP-1993;
05-JUN-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   05-JUN-1995;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAV66974;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Key
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The present invention describes a purified peptide having at least one of the following properties: (a) it stimulates transcription of a DNA sequence under the control of a delta A element, an NFKB element or an it knows binding oligonucleotide consensus sequence; (b) it binds to any of a delta A element, an NFKB element or an itaros binding oligonucleotide consensus sequence; (c) it competitively inhibits the binding of a delta A element, an NFKB element to an itaros binding oligonucleotide consensus sequence; (d) it competitively inhibits factors binding to itaros responsive elements; or competitively inhibits factors binding to itaros responsive elements; or competitively inhibits factors binding to itaros responsive elements; or that they stimulate gene transcription under the control of delta A elements, NFKB elements and/or itaros-binding oligonucleotides, bind to elements, NFKB elements and/or itaros-binding oligonucleotides, competitively inhibits binding of naturally occurring taros isoforms to elements, NFKB elements and/or itaros-binding oligonucleotides, competitively inhibits binding of naturally occurring taros isoforms to competitively inhibits binding of naturally occurring taros isoforms.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              delta A elements, NFKB elements and/or Ikaros binding oligonucleotides, competitively inhibit Ikaros binding to Ikaros-responsive elements and/or inhibit protein-protein interactions of transcriptional complexes with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               disorders, e.g. leukaemla or AIDS, or corpus striatum disorders, e.g. alzheimer's disease. The present sequence encodes an Ikaros isoform from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          naturally occurring Ikaros isoforms, can be used to treat immune system
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         721 AAAGAAGAAACTAAGCACAGTGAAATGGCAGAAGACCTGTGCAAGATAGGATCAGAGAG 780
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ikaros poly:peptide(s) - useful for treating disorders of immune
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 1004;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 1004 BP; 235 A; 328 C; 286 G; 155 T; 0 other;
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Similarity 88.8%; Pred. No. 3.8e-185;
04; Conservative 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                               Disclosure; Column 71-74; 111pp; English
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(GEHO ) GEN HOSPITAL CORP.
                                                                                                                                                                                                                                                                               system or corpus striatum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 the present invention.
                                                                                                                                         WPI; 1998-582621/49.
                                                                                                                                                                               P-PSDB; AAW72677
                                                                      Georgopoulos K;
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1381 TGCGAACACTGCCGGGTGCTCTTCCTGGATCACGTCATGTACACCATCCACATGGGCTGC 1440
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                                                                                                                                                     1141 CCCTCGGAGCGCGAGGGGTCCCCGAGCAACAGCTGCCAAGACTCCACGGACACCGAGAGC 1200
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                                                                                                           1021 CCGGTCATCAGCCCGATGTACCAGCTGCACGCGCTCGGAGGGCACCCCGCGCTCCAAC 1080
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                                                                                                                                                                                                                                                      ctgggggccgagtccctgcgcccgctggtgcagacgcccccgggcggttccgaggtggtc 474
                                                                                                                                  475 cogitcatcagocogatgiaccagotgoacaggogotoggagggoacocogogotocaao 534
                                                                                                                                                                                                                       654
                    901 GAGAACGAAATGATGAAGTCCCACGTGATGGACCAAGCCATCAACAACACCATCAACTAC 960
                                         355 gagaacgaaatgatgaagtcccacgtgatggaccaagccatcaacaacgccatcaactac 414
295 aaatttettggggacaagggeetgteegaeacgeeetaegaeagtgeçaegtaegagaag 354
                                                                                                                                                                                                            Ikaros; hIK; transcription factor; human; lymphocyte;
cell differentiation; T cell; cancer; immunodeficiency;
Alzheimer's disease; therapy; diagnosis; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAV42811 standard; cDNA; 1004 BP
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Human Ikaros cDNA.
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WPI; 1998-378292/33.
                                           P-PSDB; AAW70969
Georgopoulos K;
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and New nucleic acid encoding Ikaros protein involved in early differentiation of lymphocytes - existing in several isoforms, related products, used to treat e.g. immune diseases or cancer to control cell differentiation

Claim 7; Page 82-83; 158pp; English.

This is the nucleotide of a human Ikaros partial CDNA, which codes for a 334-amino acid zinc finger protein (see AAWV0969) that is claved and in the early differentiation of lymphocytes. It was isolated from a Jurkat T cell line library using mouse Ikaros exon 7 cDNA as probe. The Ikaros gene maps between pil.2-pil on human and murine Ikaros sequences (see AAV42805-11 cand AAV42840) are highly conserved. Differential splicing of Ikaros of Gene transcripts gives rise to different Ikaros protein isoforms. The invention provides Ikaros nucleic acids, vectors and host cells capteressing Ikaros proteins. These are used to treat T and B cell cancers), to control expression of heterologous genes placed under control of an Ikaros-responsive element, to treat nervous system of an ikaros-responsive element, to modulate cell division, control of an Ikaros-responsive element, to modulate cell division, caples of on thibit interaction with DNA sequences. The same effect can be achieved with Ikaros pinding oligonnoleotides. Examining the expression of the Ikaros gene, or its allelic structure, can be averaged to assess risk of acquiring the above diseases.

Sequence 1004 BP; 235 A; 328 C; 286 G; 155 T; 0 other;

1; 421 GGAGAACGGCCCTTCCAGTGCAATCAGTGCGGGGCCTCATTCACCCAGAAGGGCAACCTG 480 481 CTCCGGCACATCAAGCTGCATTCCGGGGAAAGCCCTTCAAATGCCACCTCTGCAACTAC 540 541 GCCTGCCGCGGAGGACGCCCTCACTGGCCACCTGAGGACGCACTCCGTTGGTAAACCT 600 601 CACAAATGTGGATATTGTGGCCGAAGCTATAAACAGGGAACGTCTTTAGAGGAACATAAA 660 Gaps 661 GAGCGCTGCCACAACTACTTGGAAAGCATGGGCCTTCCGGGCACACTGTACCCAGTCATT 720 721 AAAGAAGAAACTAAGCACAGTGAAATGGCAGAAGACCTGTGCAAGATAGGATCAGAGAGA 780 169 -----gtcatt 174 781 TCTCTCGTGCTGGACAGACTAGCAAGTAATGTCGCCAAACGTAAGAGCTCTATGCCTCAG 840 175 aaagaagaaactaagcacagtgaaatggcagaagacctgtgcaagataggatcagagaga 234 901 GAGAACGAAATGATGAAGTCCCACGTGATGGACCAAGCCATCAACAACGCCATCAACTAC 960 121 gcctgccgccggaggacgcctcactggccacctgaggacgcactcc-----Indels 126; 56.0%; Score 868; DB 19; Length 1004; 88.8%; Pred. No. 3.8e-185; ; 0 0; Mismatches Best Local Similarity 88.89 Matches 1004; Conservative 169 Query Match õ g ŏ a ŏ g ò g à g ò ద ò 合 ò

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1021 CCGGTCATCAGCCCGATGTACCAGCTGCACAGGCGCTCGGAGGGCACCCCGCGCTCCAAC 1080
                                                                                                   1081 CACTCGGCCCAGGACAGCGCCGTGGAGTACCTGCTGCTGCTCTCCAAGGCCAAGTTGGTG 1140
                                                                                                                                         1141 CCCTCGGAGGCGTCCCCGAGCAACAGCTGCCAAGACTCCACGGACACCGAGAGC 1200
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                                                                                                                                                                                                                  1261 CAACGCGTGTCGCTCAAGGAGGAGCACCGCGCCTACGACTGCTGCGCGCCGCCTCCGAG 1320
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                                                                                                                                                                                                                                                                                                                                  595 ccctcggagcgcgaggggtccccgagcaacagctgccaagactccacggacaccgagagc 654
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                                                                                                                                                                                                                                                                                                        Ikaros; zinc finger; protein; immune disorder; therapy; treatment;
                                                                                                                                                                                                                                                                   1501 GAGTTCTCGTCGCACATAACGCGAGGGGAGCACCGCTTCCACATGAGCTA 1550
                                                                                                                                                                                                                                                                                                                                                                                  /transl_except= GAA encodes Glutamine.
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                                                                                                                                                                                                                                                                                                                                                                                                                                      AAQ44979 standard; cDNA; 1788 BP.
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1032 gtccaaccattcagcacagga---cgccgtggataacttgctgctgctgtccaaggccaa 1088
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                                                                                                                                                                                                                                                                                                                                                                                                                                                       378 catgggtgaacggcctttccagtgcaaccagtctggggcctcctttacccagaaaggcaa 437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CCIGCICCGGCACAICAAGCIGCAIICCGGGGAGAAGCCCIICCAAAIGCCACCICIGCAA 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    The Ikaros gene encodes a zinc finger protein which can be used in a therapeutic composition to treat animals with an immune system disorder. It may also be used for assessing whether a subject is at risk for an immune disorder. It is of particular use in treating a disorder of the corpus striatum.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CATTAAAGAAAACTAAGCACAGTGAAATGGCAGAAGACCTGTGCAAGATAGGATCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            T-cell pathway regulatory gene, Ikaros - encodes family of unique zinc finger proteins, useful for treating immune system disorders
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                tch 52.4%; Score 813.2; DB 15; Length 1788; al Similarity 85.5%; Pred. No. 8.3e-173; 983; Conservative 0; Mismatches 143; Indels 24;
                                                                                                                                                                                                                                                                                                                     Sequence 1788 BP; 437 A; 486 C; 495 G; 370 T; 0 other;
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                                                    (GEHO ) GEN HOSPITAL CORP.
                                                                                                                 WPI; 1994-118387/14.
                                                                                                                              P-PSDB; AAR46963
                                                                                   Georgopoulos K;
                       14-SEP-1992;
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1482 CCACAGGCCAGGACCGGTACGAGTTCTCGTCGCACATAACGCGAGGGGAGCACCGCTTCCA 1541
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                                                                                                                                                                                                                                                                     1431 CATG------GCTGCCACGGCTTCCGTGATCCTTTTGAGTGCAACATGTGCGGCTA 1481
                                                                                                                                                                                      1254 ACGCGCC---AACGCGTGTCGCTCAAGGAGGAGCACCGCGCCTACGACCTGCTGCGCGC 1310
                                                                                                                                                      1209 gcatgcacgcaatgggctggctctcaaggaggagcagcgcgcctacgaggtgctgagggc 1268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    {\tt Transgenic} rodent having Ikaros trans-gene (pref. mutated) - is severely immuno-compromised and can be used as model to determine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ikaros; transgene; transgenic animal; transgenic mouse; mIk-2;
Immunocomprised; immune system disorder; nervous system disorder;
                                                                                                                                               /*tag= a
/transl_except= pos:385..388:_aa:Gln
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAT16059 standard; cDNA; 1788 BP.
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cDNA clones (AAT16059 and AAT16061-64) encode different isoforms, mIk-3, mIk-1, mIk-4 and mIk-5 (AAR92014 and AAR92016-19, respectively), of the mouse Ikaros protein, a master regulator of ine E-14 cDNA library. The isoforms arise by differential splicing of the Ikaros genomic locus. All include exons E1/2 and E7, but have Transgenic animals, pref. mice, having a mutated inger domain. Transgenic animals, pref. mice, having a mutated iters the DNA binding domain of the Ikaros protein.
effects of treatment for immune and nervous system disorders
                                       Disclosure; Fig 1; 102pp; English.
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Sequence 1788 BP; 437 A; 486 C; 495 G; 370 T; 0 other;

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417 CACTEGAGAACGGCCCTTCCAGTGCAATCAGTGCGGGGCCTCATTCACCCAGAAGGGCAA 476
h
Similarity 85.5%; Pred. No. 8.3e-173;
83; Conservative 0; Mismatches 143; Indels 24; Gaps
                                                                    477 CCTGCTCCGGCACATCCAAGCTGCATTCCGGGGAGAAGCCCTTCAAATGCCACCTCTGCAA 536
                                                                                                                    537 CTACGCCTGCCGGGGGGGGGGCGCCTCACTGGCCACCTGAGGACGCACTCCGTTGGTAA 596
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                                                                                                                                                                                                                                                                              717 CATTAAAGAAGAAACTAAGCACAGTGAAATGGCAGAAGACCTGTGCAAGATAGGATCAGA 776
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1089 gtctgtgtcatcggaggggggggggcctcccgagcaacagctgccaagactccacagatac 1148
                     1254 ACCGCGC---AACGCGTGTCGCTCAAGGAGGAGCACCGCGGCCTACGACCTGCTGCGCGC 1310
                                                                                      1209 gcatgcacgcaatgggctggctctcaaggaggagcagcggcctacgaggtgctgagggc 1268
                                                                                                           1311 CGCCTCCGAGAACTCGCAGGACGCGTTCCGCGTGGTCAGCACCAGCGGGGAGCAGAGAA 1370
                                                                                                                       1371 GGIGTACAAGTGCGAACACTGCCGGGTGCTCTTCCTGGATCACGTCATGTACACCATCCA 1430
                                                                                                                                                                   1431 CATG-----GCTGCCACGGCTTCCGTGATCCTTTTGAGTGCAACATGTGGGGGTA 1481
                                                                                                                                                                                                                        1389 catgggctgccatggctgccatggctttcgggatccctttgagtgtaacatgtgtgggtta 1448
                                                                                                                                                                                                                                                            1482 CCACAGCCAGGACCGGTACGAGTTCTCGTCGCACATAACGCGAGGGGAGCACCGCTTCCA 1541
                                                                                                                                                                                                                                                                                                                                                                                                                                                               CD3-delta gene; Ikaros gene; T cell; progenitor stem cell; leukaemia; differentiation marker; immune system; corpus striatum; AIDS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ikaros poly:peptide(s) - useful for treating disorders of immune system or corpus striatum
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                          Murine Ikaros encoding cDNA mIk-2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /*tag= a
/product= "mIk-2"
                                                                                                                                                                                                                                                                                                                                                                         AAV66968 standard; cDNA; 1788 BP.
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Alzheimer's disease; ss.
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The present invention describes a purified peptide having at least one of the following properties: (a) it stimulates transcription of a DNA of the following properties: (a) it stimulates transcription of a DNA sequence under the control of a delta A element, an NFKB element or an its aros binding oligonucleotide consensus sequence; (b) it binds to any of a delta A element, an NFKB element or an its aros binding of a consensus sequence; (c) it competitively inhibits the binding of a consensus sequence; (c) it dravos isoform to any of a delta A element, an NFKB element or an its aros binding oligonucleotide consensus sequence; (d) it competitively inhibits Its aros binding to Its aros responsive elements, or competitively inhibits protein interactions of transcriptional complexes (e) it inhibits protein-protein interactions of transcriptional complexes formed with naturally occurring Its aros isoforms. The proteins, provided that they stimulate gene transcription under the control of delta A clements, NFKB elements and/or Its aros binding oligonucleotides, competitively inhibit binding of naturally occurring Its and or Its aros binding oligonucleotides, delta A elements, NFKB elements and/or Its aros binding oligonucleotides, competitively inhibit Its aros binding to Its aros responsive elements and/or inhibit protein interactions of transcriptional complexes with inhibit protein-protein interactions of transcriptional complexes with inhibit protein-protein interactions of transcriptional complexes with alloweders, e.g. leukaemia or AlDS, or corpus striatum disorders, e.g. allowaemia or AlDS, or corpus striatum disorders, e.g. allowaemia or AlDS, or corpus striatum disorders, e.g. allowaemia or AlDS, or corpus striatum disorders, e.g. elements and elements equence encodes a specifically elements and elements and elements and elements e Disclosure; Column 51-56; 111pp; English.

Sequence 1788 BP; 437 A; 486 C; 495 G; 370 T; 0 other;

957 CIACCIGGGGGCCGAGICCCIGCGCCGCTGGIGCAGACGCCCCGGGCGGGTICCGAGGI 1016 897 GAAGGAGAAACGAAATGATGAAGTCCCACGTGATGGACCAAGCCATCAACAACGCCATCAA 956 912 ctacctgggggctgagtccctgcgcccattggtgcagacacccccggtagctccgaggt 971 TCAGAAATTTCTTGGGGACAAGGGCCTGTCCGACACGCCCTACGACAGTGCCACGTACGA 896 CATTAAAGAAAGAAACTAAGCACAGTGAAATGGCAGAAGACCTGTGCAAGATAGGATCAGA 776 836 735 gaggtcccttgtcctggacaggctggcaagcaatgtcgccaaacgtaagagctctatgcc 794 CTACGCCTGCCCCGGAGGCACGCCCTCACTGGCCACCTGGAGGACGCACTCCGTTGGTAA 596 597 ACCICACAAAIGIGGATAIIGIGGCCGAAGCIAIAAACAGGGAACGICIIIAGAGGAACA 656 TAAAGAGCGCTGCCACAACTACTTGGAAAGCATGGGCCCTTCCGGGCACACTGTACCCAGT 716 477 CCTGCTCCGGCACATCAAGCTGCATTCCGGGGAGAAGCCCTTCAAATGCCACCTCTGCAA 536 417 CACTGGAGAACGGCCCTTCCAGTGCAATCAGTGCGGGGCCTCATTCACCCAGAAGGGCAA 476 378 calgggtgaacggcctttccagtgcaaccagtctggggcctcctttacccagaaaggcaa 437 777 GAGAICTCTCGTGCTGGACAGACTAGCAAGTAATGTCGCCAAACGTAAGAGCTCTATGCC ctatgcctgccgccggaggacgccctcaccggccacctgaggacgcactccgttggtaa Similarity 85.5%; Pred. No. 8.3e-173; Conservative 0; Mismatches 143; Indels 24; 983; Conservative Query Match Local 837 795 498 657 Matches ò 셤 g g g å d δ g ò 음 à 셤 ŏ g ŏ g ŏ

1482 CCACAGCCAGGACCGGTACGAGTTCTCGTCGCACATAACGCGAGGGGAGCACCGCTTCCA 1541 1311 CGCCTCCGAGAACTCGCAGGACGCGCTCCGCGTGGTCAGCACCAGCGGGGAGCAGATGAA 1370 1371 GGIGTACAAGTGCGAACACTGCCGGGTGCTCTTCCTGGATCACGTCATGTACACCATCCA 1430 1431 CATG------GGCTGCCACGGCTTCCGTGATCCTTTTGAGTGCAACATGTGCGGCTA 1481 1074 CICCAACCACTCGGCCCAGGACAGCGCCGTGGAGTACCTGCTGCTGCTCTCTCAAGGCCAA 1133 1134 GTTGGTGCCCTCGGAGGCGCGAGGCGTCCCCGAGCAACAGCTGCCAAGACTCCACGGACAC 1193 1017 GGTCCCGGTCATCAGCCCGATGTACCAGCTGCACAGGCG---CTCGGAGGGCACCCCGCG 1073 1254 ACGCGCG---AACGCGTGTCGCTCAAGGAGGAGCACCGCGCCTACGACCTGCTGCGCGC 1542 CATGAGCTAA 1551 1509 cctgagctaa 1518 g g ò g ŏ g ò g ò g

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